

CLAIMS

1. A perforated plate (1) having a pair of opposite substantially planar faces and a plurality of through holes (4) extending between the faces, wherein a first one of the faces has a plurality of grooves (5) each of which interconnect a respective pair of the through holes.
2. The perforated plate as claimed in claim 1, wherein two of the through holes are located at different radial distances from a central zone of the plate and are interconnected by at least one of the grooves.
3. The perforated plate as claimed in claim 1, wherein at least one of the grooves (6) extends through a substantially central zone on the first face of the plate.
4. The perforated plate as claimed in claim 1, wherein one or more of the grooves extends diametrically across the central zone to interconnect a respective pair of the through holes, two or more of the through holes lie on a common radius extending from the central zone with the or each pair of adjacent through holes lying on the common radius being interconnected by a respective groove.
5. The perforated plate as claimed claim 4, wherein respective pluralities of the through holes are arranged to lie on substantially concentric circles.
6. The perforated plate as claimed in claim 4, wherein at least one of the through holes (7) does not lie on a radius in common with other through holes but is interconnected by a respective pair of the grooves (8) to the two closest radially inward through holes.
7. The perforated plate as claimed claim 6, wherein respective pluralities of the through holes are arranged to lie on substantially concentric circles.

8. The perforated plate as claimed in any preceding claim, wherein the faces of the plate are substantially parallel.
9. The perforated plate as claimed in any one of claims 1 to 7, wherein the plate is substantially circular.
10. The perforated plate as claimed in any one of claims 1 to 7, wherein the faces of the plate are substantially parallel and the plate is substantially circular.
11. The perforated plate as claimed in any one of the preceding claims, wherein the grooves are pressure-equalising passages interconnecting respective pairs of the through holes and the grooves allow flow of fluid to substantially equalise fluid pressure in the through holes.
12. An apparatus for acquiring, holding and releasing an article having a planar surface, the apparatus including at least a carrier assembly (17) having a chamber (23), a resilient membrane (22) which closes one side of the chamber, and the perforated plate (1) as claimed in any one of claims 1 to 11, wherein the perforated plate is located in the chamber with the second face facing the inner face of the membrane, the plate is arranged for limited movement substantially perpendicular to the second face of the plate between a first configuration, in which the second face of the plate is substantially in contact with the inner face of the membrane, and a second configuration, in which the first face of the plate is substantially in contact with a planar inner wall of the chamber, said inner chamber wall has an orifice (26, 27) by which a fluid pressure lower than that external to the chamber may be selectively applied to the chamber, and the orifice in the inner chamber wall is in at least indirect fluid pressure communication with the grooves (5) and through holes (4) in the perforated plate (1) when the plate is in the second configuration.
13. The apparatus as claimed in claim 12, wherein, when the plate is in the second configuration, the orifice is aligned with a central zone of the perforated plate.

14. The apparatus as claimed in claim 13, wherein, when the plate is in the second configuration, the orifice communicates with the grooves and through holes in the plate via one or more grooves in said inner chamber wall.
- 5 15. The apparatus as claimed in claim 14, wherein the one or more grooves in said inner chamber wall extend radially outwardly from the orifice.
16. The apparatus as claimed in any one of claims 12 to 15, wherein said inner chamber wall is one face of a ceramic disc (25).
- 10 17. The apparatus as claimed in any one of claims 12 to 16, wherein the article is semiconductor wafer (30).
18. The apparatus as claimed in claim 17, wherein the apparatus is for holding the semiconductor wafer (30) during a surface polishing or planarization process.
- 15